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Audio Bandwidth Extension using Cluster Weighted Modeling of Spectral Envelopes

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ABSTRACT

This paper presents a method for blind bandwidth extension of band-limited audio signals. A rough generation of the high-frequency content is performed by nonlinear distortion (waveshaping) applied to the mid-range band of the input signal. The second stage is shaping of the high-frequency spectrum envelope. It is done by a Cluster Weighted Model for MFCC coefficients, trained on full-band width audio material. An objective quality measure is introduced and the results of listening tests are presented.